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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/764,686	01/18/2001	Thomas J. Pinnavaia	MSU 4.1-456	6910

7590 10/07/2003  
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EXAMINER

JOHNSON, EDWARD M

ART UNIT	PAPER NUMBER
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1754

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DATE MAILED: 10/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Applicati n No.

09/764,686

Applicant(s)

PINNAVAIA ET AL.

Examin r

Edward M. Johnson

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-- The MAILING DATE of this communication appears n the c ver she t with the c rrespondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 July 2001.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-53 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 3-7 and 35-51 is/are allowed.
- 6) ☒ Claim(s) 1,2,52 and 53 is/are rejected.
- 7) ☒ Claim(s) 8-34 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All   b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Beck et al. US 5,370,785.

Beck '785 discloses a mesoporous silica (see column 4, lines 56-60) compound comprising hexagonal and lamellar crystals (see abstract and column 2, lines 23-44) and small channels or pores (see column 3, lines 35-40).

3. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Yamada et al. US 5,750,085.

Yamada '085 discloses a silica porous material comprising both a layered (lamellar) structure and having pores passing through the entire structure (wormholes) (see abstract and Figs. 1 and 4).

4. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Pelrine et al. US 5,270,273.

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Pelrine '273 discloses a silica composition comprising a hexagonal zeolite framework with channel pores passing throughout (see column 6, lines 30-56).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 2 and 52-53 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Beck '785.

Beck '785 discloses a mesoporous silica (see column 4, lines 56-60) compound comprising hexagonal and lamellar crystals (see abstract and column 2, lines 23-44) and small channels or pores (see column 3, lines 35-40).

7. Claims 2 and 52-53 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Yamada '085.

Yamada '085 discloses a silica porous material comprising both a layered (lamellar) structure and having pores passing

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though the entire structure (wormholes) (see abstract and Figs. 1 and 4).

8. Claims 2 and 52-53 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Pelrine '273.

Pelrine '273 discloses a silica composition comprising a hexagonal zeolite framework with channel pores passing throughout (see column 6, lines 30-56).

***Allowable Subject Matter***

9. Claims 3-7 and 35-51 are allowed.

10. Claims 8-34 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The framework mesopore diameter of 1.0-12.0 nm and the wormhole and lamellar or hexagonal pore-pore correlation spacing of 1.5-15.0 nm of the composition produced by the process of the instant claims 3 and 35-36 would not have been obvious to one of ordinary skill in the art at the time the invention was made. The silicate formula of the instant claims 8, 15, 21, or 27, in the silica hybrid wormhole and lamellar or hexagonal composition of those respective claims would not have

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been obvious to one of ordinary skill in the art at the time the invention was made. The composition having the TEM micrograph of Figure 8A and diffraction spots of Figure 8C in the wormhole lamellar/hexagonal silica composition of the instant claim 34 would not have been obvious to one of ordinary skill in the art at the time the invention was made. It also would not have been obvious to one of ordinary skill in the art at the time the invention was made to react the amine surfactant and silica species of pH 5.0-10.5 in the process for making the hybrid molecular sieve silica of the instant claims 37-38, 40, and 46-48.

### **Conclusion**

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Stucky et al. US 6,592,764 discloses a silica composition comprising a lamellar framework, wormhole pores, and mesopores (see abstract, background, and Examples).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edward M. Johnson whose telephone number is 703-305-0216. The examiner can normally be reached on M-F 6:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley S. Silverman

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can be reached on 703-308-3837. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

EMJ

  
STANLEY S. SILVERMAN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700